



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

JENDICK

Atty. Ref.: 4401-4

Serial No. 09/412,362

Group: 3721

Filed: October 5, 1999

Examiner: L. Huynh

For: METHOD AND APPARATUS FOR MANUFACTURING
MARKED ARTICLES TO BE INCLUDED IN CANS

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Commissioner for Patents
P.O. Box 1450
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Sir:

SUBSTITUTE DECLARATION UNDER RULE 1.131

1. I, Manfred Jendick, am the sole inventor of the subject matter claimed in U.S. application no. 09/412,362 (the '362 application). This Substitute Declaration is intended to substitute the Declaration filed on February 12, 2004.

2. Attached in Appendix A are a sketch and photograph of an apparatus included as one embodiment of the '362 application. The sketch was created and the photograph was taken prior to April 17, 1998. The sketch forms the basis for Figure 2 of the present application, and the apparatus in the photograph includes all elements shown in the sketch. The photograph is a picture of a working prototype apparatus that was reduced to practice at least prior to April 17, 1998. The operation of that apparatus is described below.

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3. The apparatus shown in Appendix A is for manufacturing articles to be included in cans. The sketch and photograph in Appendix A include numbered reference elements and/or various English-language annotations. For example, Appendix A shows that the apparatus (15) includes a supply (6) of a metal strip (17) having an upper surface and a lower surface. The sketch includes the reference number 6 indicating the "metal strip supply", while the photograph simply includes "strip supply" and "laser engraved strip", without the reference numbers. A "laser unit 21" is shown in the sketch, while a "control unit (computer)" and "laser unit" are shown in the photograph. The sketch shows "guiding plates" (18, 19) and "support means" (20), while the photograph shows a "support".

4. In the operation of the apparatus shown in Appendix A prior to April 17, 1998, the laser unit (21 in the sketch; "laser unit" in the photograph) was arranged between the supply of metal strip and an article forming unit. The article forming unit is not shown in Appendix A, but the apparatus was used in conjunction with an article forming unit, as specified. The laser unit of the apparatus shown in Appendix A provided laser engravings on the upper surface of the strip. The laser engravings formed marks on the upper surface of the strip. The strip was formed into the articles to be included in the cans by the article forming unit. The control unit was in communication with the laser unit. The laser unit was controlled so that the laser engravings were provided on the upper surface of the strip when the strip was in the immobilized condition between the periods of intermittent movement. See, e.g., independent claims 44 and 63. The strip

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was intermittently fed, e.g., at a line speed of 640 strokes per minute, with a dwell time of about 60 msec, during which time the laser markings were applied.

5. The sketch and photograph in Appendix A support the subject matter in pending claims 44, 57, 61, 63, 75, 76, 80, 81, 90, 91, 93-96 and 98-112. Those claims are reproduced below:

44. A method of manufacturing articles to be included in cans, comprising:

intermittently feeding a metal strip having an upper surface and a lower surface into an article forming unit; and providing at least one of the upper surface and the lower surface of the strip with laser engravings from a laser unit when the strip is in an immobilized condition and before the strip is fed into the article forming unit where the articles are formed, said laser engravings forming marks on at least one of the upper surface and the lower surface of the strip.

57. A method as set forth in claim 44, further comprising guiding the strip past the laser unit.

61. A method as set forth in claim 44, wherein the articles are opening tabs to be attached to ends of the cans.

63. An apparatus for manufacturing articles to be included in cans, comprising:

a supply of a metal strip having an upper surface and a lower surface;

an article forming unit;

a strip feeder between the supply and the article forming unit, the strip feeder intermittently moving the strip into the article forming unit such that the strip is in an immobilized condition between periods of intermittent movement;

a laser unit arranged between the supply of metal strip and the article forming unit, the laser unit providing laser engravings on at least one of the upper surface and the lower surface of the strip, the laser engravings forming marks on at least one of the upper surface and the lower surface of the

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strip to be formed into the articles by the article forming unit;
and

a control unit in communication with the laser unit, the laser unit being controlled so that the laser engravings are provided on at least one of the upper surface and the lower surface of the strip when the strip is in the immobilized condition between the periods of intermittent movement.

75. An apparatus as set forth in claim 63, wherein the laser unit is arranged adjacent to the article forming unit but does not impart vibrations to or otherwise disrupt operation of the article forming unit.

76. An apparatus as set forth in claim 63, further comprising a guide that guides said strip past said laser unit.

80. An apparatus as set forth in claim 63, wherein the laser unit is disconnectible for allowing article manufacture without marking of the strip.

81. An apparatus as set forth in claim 63, wherein said articles are opening tabs to be attached to ends of the cans.

90. An apparatus for manufacturing articles to be included in cans, comprising:

an article forming unit;

a strip feeder between the supply and the article forming unit, the strip feeder moving the strip into the article forming unit in periods of rapid movement;

a laser unit arranged between the supply of metal strip and the article forming unit, the laser unit providing laser engravings on at least one of the upper surface and the lower surface of the strip, the laser engravings forming marks on at least one of the upper surface and the lower surface of the strip to be formed into the articles by the article forming unit;
and

a control unit in communication with the laser unit, the laser unit being controlled so that the laser engravings are provided on at least one of the upper surface and the lower surface of the strip when the strip is between the periods of rapid movement.

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91. A method of manufacturing articles to be included in cans, comprising:

feeding a metal strip having an upper surface and a lower surface into an article forming unit, said strip being fed in periods of rapid movement; and

providing at least one of the upper surface and the lower surface of the strip with laser engravings from a laser unit when the strip is in between the periods of rapid movement and before the strip is fed into the article forming unit where the articles are formed, said laser engravings forming marks on at least one of the upper surface and the lower surface of the strip.

93. A method of manufacturing opening tabs to be attached to ends of cans, comprising:

intermittently moving a metal strip having an upper surface and a lower surface along a predetermined path into an opening tab forming unit where the opening tabs are formed;

providing a laser unit along the path at a position that precedes the opening tab forming unit; and

forming laser engraved marks with the laser unit on at least a selected surface of the upper surface and the lower surface of the strip when the strip is in an immobilized condition, whereby the laser unit is controlled during immobilization of the strip such that the laser engraved marks form a distinct code on the selected surface.

94. A method as set forth in claim 93, wherein the distinct code is at least one of a code that indicates a site of production, an hour code indicating when the tab was produced, a minute code indicating when the tab was produced, and a code that indicates that a person who opens the can using the tab is a winner.

95. An apparatus for manufacturing opening tabs to be attached to ends of cans, comprising:

a supply of a metal strip having an upper surface and a lower surface;

an opening tab forming unit provided along a predetermined path following the supply and structured to form opening tabs;

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a strip feeder structured to intermittently move the strip along the path into the opening tab forming unit;
a laser unit provided along the path at a position that precedes the opening tab forming unit, the laser unit providing laser engraved marks on at least one of the upper surface and the lower surface of the strip; and
a control unit in communication with the laser unit, the control unit controlling the laser unit so that the laser engraved marks are provided on at least a selected surface of the upper surface and the lower surface of the strip when the strip is in the immobilized condition, whereby the laser unit is controlled during immobilization of the strip such that the laser engraved marks form a distinct code on the selected surface.

96. An apparatus as set forth in claim 95, wherein the distinct code is at least one of a code that indicates a site of production, an hour code indicating when the tab was produced, a minute code indicating when the tab was produced, and a code that indicates that a person who opens the can using the tab is a winner.

98. An apparatus as claimed in claim 63, wherein the metal strip has a thickness defined between the upper surface and the lower surface, and the laser engravings extend into a metal portion of the metal strip to a depth that is within the thickness of the metal strip.

99. A can with a laser engraved tab formed by a method comprising:
intermittently feeding a metal strip having an upper surface and a lower surface into an article forming unit; and
providing at least one of the upper surface and the lower surface of the strip with laser engravings from a laser unit when the strip is in an immobilized condition and before the strip is fed into the article forming unit where the articles are formed, said laser engravings forming marks on at least one of the upper surface and the lower surface of the strip.

100. A method as claimed in claim 44, further comprising extending the laser engravings a finite depth into a metal portion of the metal strip to form marks in at least one of the upper surface and the lower surface of the metal strip.

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101. A method as claimed in claim 44, wherein the strip is in the immobilized condition for less than about 60 milliseconds for forming at least four characters.

102. An apparatus as claimed in claim 63, wherein the strip is in the immobilized condition for less than about 60 milliseconds for forming at least four characters.

103. A method of manufacturing articles to be included in cans, comprising:
intermittently feeding a metal strip having a metal surface into an article forming unit; and
providing the metal surface of the strip with laser engravings from a laser unit when the strip is in immobilized condition and before the strip is fed into the article forming unit where the articles are formed, the laser engravings forming marks into the metal surface of the strip.

104. A method as claimed in claim 103, further comprising:
providing a coating on the metal strip; and
extending the laser engravings through the coating and into the metal surface of the strip.

105. A method as claimed in claim 44, wherein the upper surface of the metal strip includes a coating and the coating is laser engraved.

106. A method as claimed in claim 105, wherein the laser engravings extend through the coating and into the metal strip.

107. A method as claimed in claim 105, wherein the articles are can ends and the laser engravings are provided in the can ends for traceability.

108. A method as claimed in claim 44, wherein the articles are tabs to be attached to can ends and the laser engravings include markings into the metal strip to indicate a person who uses a selected one of the tabs is a winner.

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109. An apparatus as claimed in claim 63, wherein the upper surface of the metal strip includes a coating and the coating is laser engraved.

110. An apparatus as claimed in claim 109, wherein the laser engravings extend through the coating and into the metal strip.

111. An apparatus as claimed in claim 109, wherein the articles are can ends and the laser engravings are provided in the can ends for traceability.

112. An apparatus as claimed in claim 63, wherein the articles are tabs to be attached to can ends and the laser engravings include markings into the metal strip to indicate a person who uses a selected one of the tabs is a winner.

6. To the extent, if any, that the sketch and photograph do not explicitly support the above-quoted claim language, I hereby verify that each and every claim feature of the pending claims was contemplated and/or part of the apparatus shown in Appendix A, prior to April 17, 1998.

7. Appendix A is provided as evidence that the subject matter set forth in the pending claims (following entry of the Amendment filed on even date herewith) was conceived and reduced to practice at least prior to April 17, 1998.

8. I diligently worked to make the apparatus shown in Appendix A from the time of conception until it was reduced to practice.

9. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001

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of Title 18 of the United States Code and that such willful false statements may
jeopardize the validity of the application or any patent issued thereon.

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Attachment:
Appendix A